

What is claimed is:

A vacuum low-temperature distilled pure water dispenser, comprising a water-supply tank, a reaction
5 chamber, a pure water storage tank, an actuating pump, and a refrigerating system;

10 said water-supply tank being a container for containing water to be supplied to said reaction chamber for distillation, and having a water supply line extended from a bottom thereof to said reaction chamber;

15 said reaction chamber including an upper housing and a lower base that together define a sealed hollow space between them; said lower base having an inner barrel, a wave damper, and a water inlet tube formed thereon, said water inlet tube having a ball float valve assembly provided at an upper end thereof for automatic
20 control of water volume supplied into said reaction chamber, said inner barrel being provided around an upper outer periphery with spaced upper and lower dams and at a bottom with an upward extended guiding cone; a down-stream passage and an up-stream passage being
25 provided to extend from a top of said upper housing

down into said inner barrel with uppermost ends of said
down-stream and said up-stream passages communicating
with a bottom of said pure water storage tank, which
is located above said reaction chamber, a lower end
5 of said down-stream passage located in said inner
barrel, and a lower end of said up-stream passage
connected to a narrowed upper opening of said guiding
cone; a solenoid relief valve being provided to one
side of said upper housing; an automatic one-way drain
10 valve being provided on said lower base for draining
waste water in said reaction chamber to a waste water
tank; and an evaporator of said refrigerating system
being mounted along a lower inner periphery of said
reaction chamber;

15
said pure water storage tank being located above said
reaction chamber and connected at a bottom to said
up-stream and said down-stream passages of said
reaction chamber, and a condenser of said
20 refrigerating system being mounted in said pure water
storage tank;

said actuating pump being a water pump using water as
a driving source and located immediately below said
25 reaction chamber; said actuating pump having a water

inlet communicating with the lower end of said
down-stream passage in said inner barrel of said
reaction chamber, a water outlet having an upward
tapered compression nozzle connected to an upper end
5 thereof, such that said compression nozzle upward
extends into a space defined below said guiding cone
provided at the bottom of said inner barrel, and a water
outlet check valve provided adjacent to said water
outlet to locate below said guiding cone and
10 communicable with an internal space of said inner
barrel via a flow-guiding tube; and

said refrigerating system being in the form of a closed
circuit and sequentially including a compressor, an
15 auxiliary radiator, an evaporator, an expansion valve,
a condenser, and a small-size auxiliary condenser tube;
said evaporator being mounted in said reaction chamber
along a lower inner periphery thereof, said condenser
being mounted inside said pure water storage tank, and
20 said small-size auxiliary condenser tube being located
in said inner barrel;

whereby when said actuating pump is actuated, a vacuum
is produced in said reaction chamber to suck water in
25 said water-supply tank into said reaction chamber, and

said water sucked into said vacuumized reaction chamber is heated and vaporized, that is, distilled, by low-temperature heat produced by said compressor of said refrigerating system and transmitted to said
5 evaporator mounted in said reaction chamber, and vapors of said water produced through vacuum low-temperature distillation in said reaction chamber condense to pure water droplets that are collected at the bottom of said inner barrel, and said condensed
10 pure water in said inner barrel is sucked into said guiding cone via said flow-guiding tube and said water outlet valve of said actuating pump that keeps pumping to finally flow upward along said up-steam passage into said pure water storage tank.